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ABSTRACT

The upper and lower 5% of 456 undergraduate students who completed the Constructive Thinking Inventory (CTI) were subjected to a laboratory stress test. In support of the hypothesis, poor constructive thinkers reacted to the stress with a greater increase in negative thoughts and negative emotions, and exhibited a greater increase in blood pressure and other measures of physiological arousal than did good constructive thinkers. Examination of thought patterns indicated that poor constructive thinkers did not differ from good constructive thinkers in positive thinking, but did differ in some aspects of negative thinking. It was concluded that an increased number of physical symptoms reported by poor constructive thinkers may be mediated by the increased stress produced by their maladaptive thinking style. (Author)

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CONSTRUCTIVE THINKING AND THE EXPERIENCE OF STRESS

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Abstract

The upper and lower 5% of 456 undergraduate students who completed the Constructive Thinking Inventory (CTI) were subjected to a laboratory stress test. In support of the hypothesis, poor constructive thinkers reacted to the stress with a greater increase in negative thoughts and negative emotions, and exhibited a greater increase in blood pressure and other measures of physiological arousal. Examination of thought patterns indicated that poor constructive thinkers did not differ from good constructive thinkers in positive thinking, but did differ in some aspects of negative thinking. It was concluded that an increased number of physical symptoms reported by poor constructive thinkers may be mediated by the increased stress produced by their maladaptive thinking style.

Introduction

The bipolar dimension of Constructive Thinking Inventory (CTI) measures a broadly defined constructive and destructive thinking with specific components (Epstein, 1988). The Global Constructive Thinking scale was found in one study (Epstein and Meier, 1989) to be significantly associated with mental health, physical health, and success in work, social relationships, and love-life. It produced stronger correlations with these variables than other tests, such as Seligman's ASQ, Rotter's I-E scale, and Sarason's SSQ. The only criterion with which the CTI was not correlated was with school achievement, which was the only one with which IQ was strongly correlated. In a more recent unpublished study, the CTI was found to be much more strongly associated with productive load, mental health, and physical health than the Kobasa Hardiness scale.

The purpose of the present study was to examine the relation between scores on the CTI and cognitive processing of information in a stressful situation. We were also interested in the differences in emotional and physiological reactions in a stressful situation between good and poor constructive thinkers, and in their differences in physical health. It was hypothesized that poor constructive thinkers when exposed to a stressful situation, think in ways that are more stress-inducing and, accordingly, experience more negative affect and greater physiological arousal than good constructive thinkers.

Method

The highest and lowest scoring five percent of 456 undergraduate students who completed the CTI were selected as subjects. Dependent measures were collected after an initial waiting period, a post-stress period, a first recovery period,

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and a second recovery period. The stress test consisted of subtracting sevens from 300 and tracing the path of a star while looking into a mirror. Performance was measured by the amount of each task accomplished. During the first recovery period, subjects first completed a medical checklist, and, after a waiting period, were debriefed. They were then asked to relax as fully as they could during a second waiting period in order to reach their lowest physiological baseline.

The dependent measures consisted of 1) self-report ratings on a 5-point scale of the extent to which subjects had negative, positive, and neutral thoughts related and unrelated to the experiment during the four periods, 2) an adjective check list during the four periods, 3) questions about their thoughts during the stress period, 4) physiological measures of blood pressure, heart rate, and finger and wrist temperature during the four periods, and 5) items from an interview at the end of the experiment during which subjects reported on their constructive and destructive thinking during the experiment, and an interviewer, blind to group status, rated the subjects on how friendly, relaxed, helpful, and self-confident they appeared to be.

Results

Performance

There were no significant differences in performance between the groups on either the subtraction task, $F(1,50) = .34$, $p<.57$, or the mirror-tracing task, $F(1,50) = .21$, $p<.65$. Thus, whatever differences are found in thought processes and in other variables cannot be attributed to differences in performance.

Thoughts

For negative thoughts related to the experiment, there was a significant interaction between constructive thinking and periods, $F(3,150) = 3.80$, $p<.01$, and there were significant contrasts between high and low constructive thinkers' ratings during the second, $t = 3.16$, $p<.01$, and third periods, $t = 3.22$, $p<.01$. Figure 1 indicates that poor constructive thinkers respond to the stress situation with more negative thoughts than good constructive thinkers and recovered to about the same point at the end of the experiment.

In Figure 1, it can be seen that poor constructive thinkers also reported significantly more negative thoughts unrelated to the experiment than good constructive thinkers, $F(1,50) = 14.55$, $p<.001$, but this did not vary as a function of the stressors.

There were no differences between good and poor constructive thinkers on positive and on neutral thoughts.

Emotions

A significant interaction between constructive thinking and periods, $F(3,150) = 8.82$, $p<.000$, indicated that poor constructive thinkers reported more negative emotions than good constructive thinkers in general and particularly during the stress period (see Figure 2). There were no differences between good and poor constructive thinking on a measure of engagement.

Physiological Measures

The groups did not differ in any period other than the last one. In the last period, good constructive thinkers exhibited the expected decrease in physiological arousal from the third period, whereas the poor constructive thinkers exhibited a paradoxical increase in blood pressure $F(1,50) = 4.58$, $p<.05$, and finger temperature, $F(1,50) = 3.82$, $p<.05$ (see figure 3).

Self-Evaluations

Poor constructive thinkers rated the tasks as more stressful, $F = 19.03$, $p<.000$, and they rated themselves as performing worse compared to others, $F(1,50) = 4.08$, $p<.05$, than good constructive thinkers. Poor constructive thinkers also reported significantly more concern about their performance according to their own standards, $F(1,50) = 6.70$, $p<.01$, and more concern about the impression they made on the examiner, $F(1,50) = 20.71$, $p<.000$.

Poor constructive thinkers rated the constructiveness of their thinking during the stress test as less adequate than good constructive thinkers $F(1,50) = 20.42$, $p<.001$.

Examiners' Evaluations

The examiners rated poor constructive thinkers as appearing less confident, $F(1,50) = 12.59$, $p<.001$, less relaxed, $F(1,50) = 8.57$, $p<.01$, and marginally less helpful, $F(1,50) = 3.57$, $p<.06$, than good constructive thinkers.

Medical Symptoms

Poor constructive thinkers reported more minor illnesses, $t = 3.86$, $p<.05$, more disturbing emotions, such as anxiety reactions and feelings of depression, $t = 19.00$, $p<.000$, than high constructive thinkers.

Concluding Remarks

This study demonstrated that people scoring high and low on the CTI differed in their responses to actual stressors in the laboratory as hypothesized. Low constructive thinkers not only reported more negative cognitive and emotional reactions across most phases of the experiment than high constructive thinkers, they also reported an exacerbated reaction to the stressors. Moreover, objective measures obtained in this study, namely examiners' ratings and physiological reactivity indicated that constructive

thinking is not simply measuring a global tendency to make favorable or unfavorable statements about the self. Finally, information was obtained on the particular ways that good and poor constructive thinkers differed in their thinking when confronting a stressor.

The increase in physiological reactivity at the end of the experiment, and the elevated physical symptoms reported by poor constructive thinkers is consistent with the hypothesis that the relation of poor constructive thinking and illness observed here and elsewhere (Epstein, 1988) is mediated by the stress-inducing thinking that is characteristic of poor constructive thinkers.

References

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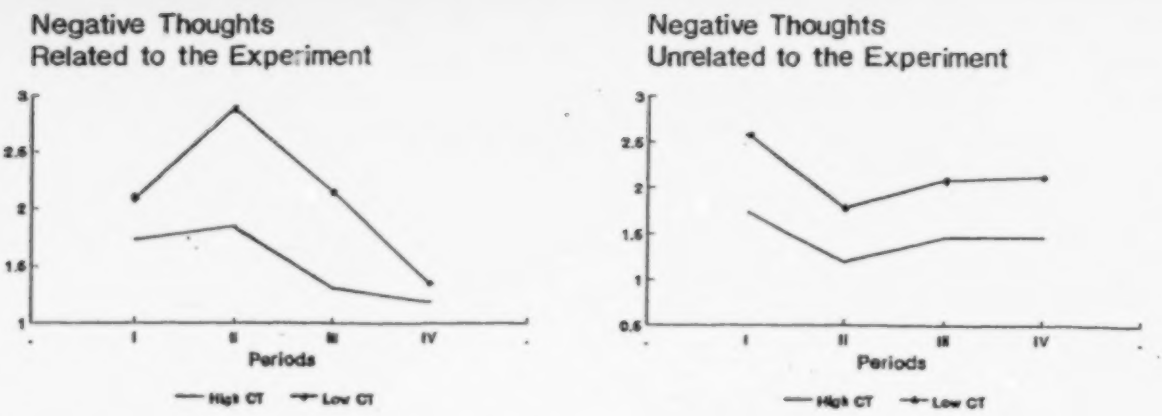

Figure 1. Negative thoughts related and unrelated to the experiment for good and poor constructive thinkers across four periods.

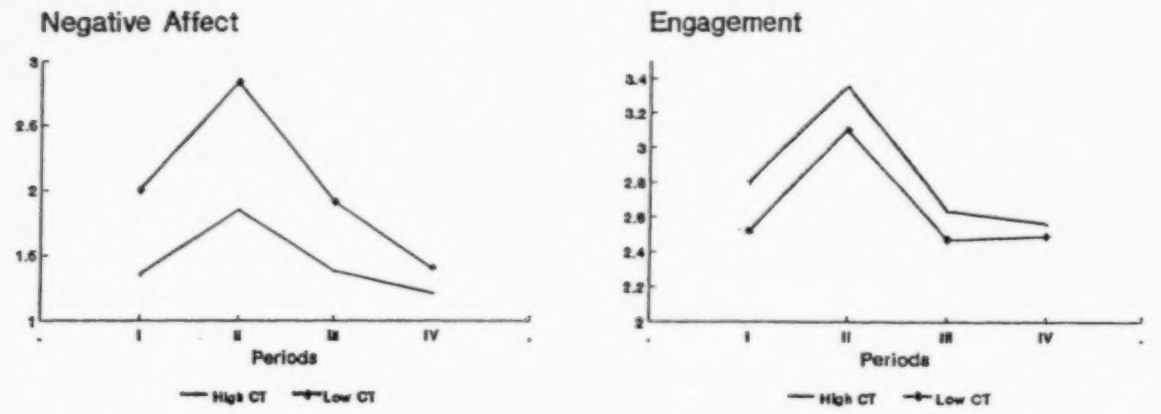

Figure 2. Negative emotions and engagement for good and poor constructive thinkers across four periods.

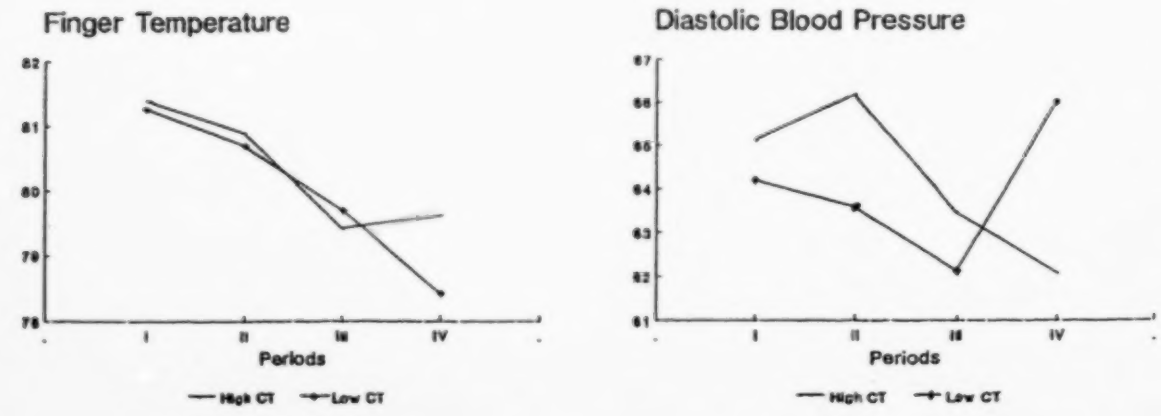

Figure 3. Diastolic blood pressure and finger temperature for good and poor constructive thinkers across four periods.